

CLAIMS

1. A painted polyacetal article comprising:
 - a polyacetal substrate comprising 90 – 99.5wt% polyacetal and 0.5 – 10wt% of semicrystalline or amorphous thermoplastic non-polyacetal resin of molecular weight 1,000 - 50,000; and
 - a paint applied to the polyacetal substrate from a solvent-borne, water-borne or powder 1K paint system onto a surface of the polyacetal substrate pretreated to enhance exposure of said semicrystalline or amorphous thermoplastic non-polyacetal resin of the substrate to the applied paint;said paint being a thermoplastic or partly thermoplastic paint .
2. The painted polyacetal article of claim 1, wherein the substrate comprises 95 – 98.5wt% polyacetal and 1.5 – 5wt% of the semicrystalline or amorphous thermoplastic non-polyacetal resin.
3. The painted polyacetal article of claim 1, wherein the semicrystalline or amorphous thermoplastic non-polyacetal resin has a nitrogen group, an OH group, or an acrylate, or methacrylate functionality.
4. The painted polyacetal article of claim 3, wherein the semicrystalline or amorphous thermoplastic non-polyacetal resin comprises at least one amide.
5. The painted polyacetal article of claim 4, wherein the semicrystalline or amorphous thermoplastic non-polyacetal resin comprises a blend of first and second polyamides of different molecular weights.
6. The painted polyacetal article of claim 5, wherein the first polyamide has a molecular weight which is at least 5000 greater than that of the second polyamide, the first polyamide having a molecular weight in the range 20,000 to 50,000 and being present in an amount in the range 0.5 – 5wt%, and the second polyamide having a molecular weight in the range 1,000 to 25,000 and being present in an amount equal to or less than the first polyamide and in the range 0.1 - 2.5wt%.
7. The painted polyacetal article of claim 6, wherein the first polyamide is present in an amount 1 – 2wt% and the second polyamide is present in an amount 0.25 – 1.5wt%.

8. The painted polyacetal article of claim 1, wherein the paint system contains a thermoplastic polymer with a glass transition temperature below 25°C.
- 5 9. The painted polyacetal article of claim 1, wherein the applied thermoplastic or partly thermoplastic paint is covered with a layer of thermoset paint or varnish.
- 10 10. A process of producing a painted polyacetal article, comprising:
 - providing a polyacetal substrate produced by solidifying a molten blend comprising 90 – 99.5wt% polyacetal and 0.5 – 10wt% of semicrystalline or amorphous thermoplastic non-polyacetal resin of molecular weight 1,000 – 50,000;
 - treating a surface of the polyacetal substrate for the application to the treated surface of a paint, to enhance exposure of said semicrystalline or amorphous thermoplastic non-polyacetal resin to an applied paint; and
 - 15 - applying a thermoplastic or partly thermoplastic paint from a solvent-borne, water-borne or powder 1K paint system onto the treated surface of the polyacetal substrate.
- 20 11. The process of claim 10, wherein the surface of the polyacetal substrate is treated by a surface modification technique selected from etching, flaming, ionization, sanding, surface cleaning and UV exposure.
- 25 12. The process of claim 11, wherein the surface of the polyacetal substrate is treated by etching from a mixed acid bath containing at least three acids from the group sulfuric acid, phosphoric acid, hydrochloric acid and an organic acid.
13. The process of claim 12, wherein the mixed acid bath contains sulfuric acid, phosphoric acid, hydrochloric acid and acetic acid.
- 30 14. The process of claim 10, wherein the polyacetal substrate is provided by molding, extrusion or thermoforming.
15. The process of claim 10, wherein the thermoplastic or partly thermoplastic paint is applied by dipping, spraying, brushing or powder application.

16. The process of claim 10, which comprises covering the applied thermoplastic or partly thermoplastic paint with a layer of thermosetting paint or varnish.

5 17. The process of claim 10, wherein the semicrystalline or amorphous thermoplastic non-polyacetal resin comprises a blend of first and second polyamides of different molecular weights, wherein the first polyamide has a molecular weight which is at least 5000 greater than that of the second polyamide, and the first polyamide has a molecular weight in the range 20,000 to 50,000 and is present in an
10 amount in the range 0.5 – 5wt%, and the second polyamide has a molecular weight in the range 1,000 to 25,000 and is present in an amount equal to or less than the first polyamide and in the range 0.1 - 2.5wt%.

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